Lambda Station: Alternate network path forwarding for production SciDAC applications.

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Abstract

The LHC experiments will start very soon, creating immense data volumes capable of demanding allocation of an entire network circuit for task-driven applications. Circuit-based alternate network paths are one solution to meeting the LHC high bandwidth network requirements. The Lambda Station project is aimed at addressing growing requirements for dynamic allocation of alternate network paths. Lambda Station orchestrates the re-routing of designated traffic through site LAN infrastructure onto so-called "high-impact" wide-area networks. The prototype Lambda Station developed with Service Oriented Architecture (SOA) will be presented. Lambda Station has been successfully integrated into the production version of the Storage Resource Manager (dCache/SRM), and deployed at US CMS Tier1 center at Fermilab, as well as at US-CMS Tier-2 site at Caltech. This paper will discuss experiences using the prototype system with production SciDAC applications for data movement between Fermilab and Caltech. The architecture and design principles of the production version Lambda Station software, currently being reimplemented as Java based Web services, will also be presented in this paper.